International Journal on Integrated Education

https://journals.researchparks.org/index.php/IJIE

e-ISSN : 2620 - 3502
p-ISSN : 2615 - 3785

Some Methods of Discovering a Problem Situation in Teaching Students and Resolving the Situation

Rahmonqulov Rayimqul Rahmonqulovich
Associate professor, Almalik branch of Islam Karimov Tashkent State Technical University
rayimqulraxmonqulov@gmail.com

Toshtemirov Kamol Qahramonovich
Senior teacher, Almalik branch of Islam Karimov Tashkent State Technical University
koliya.temirov@mail.ru

Toshtemirova Gulnora Ayubjonovna
Assistant professor, Almalik branch of Islam Karimov Tashkent State Technical University
gulnoratoshtemirovamt@gmail.com

Abstract: This article is dedicated to the audience's opinion on creating a problem situation during the course of the lesson, creating a short program suitable for this topic and finding the correct solution to the problem created using it. When learning in technical sciences, a subject is covered using a downloadable program, as it differs from existing software packages, the order of the lesson is given based on the above-mentioned idea.

Keywords: Creativity, Problem Situation, Computer Packages, Downloadable Program, Orientation Packages, Moving Coordinates.

Introduction

When using an electronic textbook, the role of the teacher changes dramatically. In this case, he/she organizes the lesson based on the software that he has written for this lesson. For each topic discussed, he asks the listener questions and quickly gets the result and does not waste time checking whether it matches the listener's answer. The use of interactive forms and teaching methods in the process of studying at the university allows you to have the following [1]:

- Gaining experience to actively develop content of future professional experience and apply it in future practice;
- To develop personal thinking as a future professional in his work;
- In this regard, master the new experience of professional cooperation with practitioners of this direction;

We note that the teacher may not spend time in remote education and checking the completion of the independent work assignment by the student. The reason for this is that he understood and listened to the program being used. Otherwise, the program will automatically stop it from working [2,3].

LITERATURE REVIEW AND METHODS

The following cases can be added to the highest productivity of independent work of students during their studies:

Didactic conditions.

e-ISSN : 26203502
p-ISSN : 26153785

Nowadays, the increased possibilities of modern computer programs have expanded the possibility of educating future engineers. Adding these capabilities to traditional methods leads to improved quality. At this point, it is enough to mention that schoolchildren are also taught how to communicate with a computer.

The main goal of the article is to solve static problems visually using currently created packages. The use of packages includes the following cases.

- Perfect learning of the package:
- To be able to adapt its capabilities to its direction:
- Can he satisfy the package options?
- The commands written to it require that it can fully perform the task and many similar requirements [4].

DISCUSSION

The way we suggest is to use the package's capabilities on a per-topic basis.

But this method often does not work.

The reason:

- The fact that the packages are intended for a particular subject area or to cover it completely:
- Not all packages have the ability to fully cover the issue in a visual state;
- Availability of this package in the computer memory during training;
- It requires funds to purchase the package.

According to the reasoning given above:

- Create a small downloadable program for each topic:
- Ability to describe situations in a visual form in the program:
- Ability to accurately answer various questions that may arise in advance on the topic, by changing the appearance:
- Taking into account the ability of the engineer to perform bookkeeping and other considerations during the operation of the program, we suggest creating a small downloadable program and using it during training [5].

An engineer cannot spend time solving many mathematical problems during his work. Basically, he should fully imagine the content and essence of the event. It is enough if it is explained to him during training.

RESULTS

Teaching the statics section of theoretical mechanics.

It is known that this section teaches the state of equilibrium of the forces acting on the body. In this case, the pedagogue traditionally uses chalk and a ruler to draw forces on the blackboard and project them onto the coordinate axes, and spends time and time. Now, the mouse can create it in seconds by changing its position. If the generated force is projected onto the coordinate axes, by complicating the training with various questions, it will increase the possibility of activating the audience and allowing the listeners to think, which will naturally increase the efficiency of the training. Instead of drawing dry coordinate axes during the training, construction (prepared) is given, it leads to the direction of training and increases its efficiency.

Here is another result:

When learning the moment of force with respect to a point, instead of describing the force vector with a dry point, a construction is given. Program creation algorithm:

e-ISSN : 26203502
p-ISSN : 26153785

- In most cases, it should not be overlooked that the horizontal and vertical axes of the monitor screen are switched. For this, it is necessary to use the formulas for moving and rotating the coordinate axes.

$$\begin{cases} x' = x + a \\ y' = y + b \end{cases}$$

And we have a=0

$$\begin{cases} x' = x \\ y' = y \end{cases}$$

Here, *x,y* are the old coordinate axes; *b*-Monitor's lowest point (in pixels).

In this case, the direction of the coordinate axes becomes normal.

Fan is given by the shortest distance of angular change. For example, see Fig. 1.

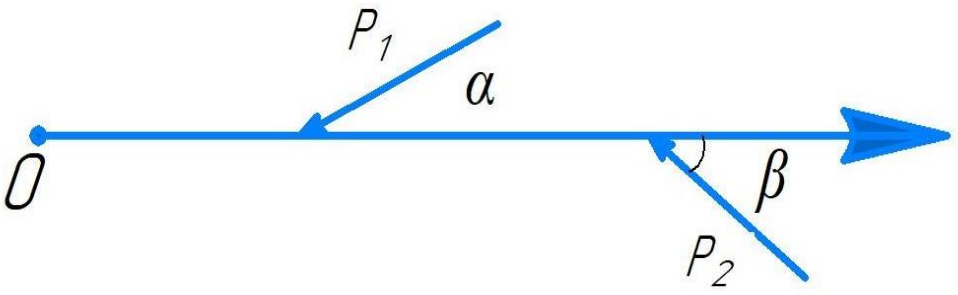

Figure 1.

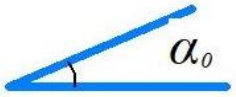

Figure 2.

It is known from the school course that it is taken as $pr_x(p_1)=p_1\cos a$ $pr_x(p_2)=p_2\cos a$ when calculating its projections on axes.

But since we have changed the coordinate axes, if we take the angle change as $\alpha = 360 - \alpha_0$, (Fig. 2) there is no difficulty in creating an algorithm, and the display on the monitor becomes a traditional method. The directions of the projections of the forces onto the axes are taken into account by themselves.

The problem of finding the point of intersection of two perpendicular lines is performed on the basis of the following algorithm.

$$x=\frac{b_2-b_1}{k+\frac{1}{k}} \quad y=k*\frac{b_2-b_1}{k+\frac{1}{k}}+b_2 \qquad (1)$$

Here,

$$x=\frac{y_2-y_1}{x_2-x_1}$$

$$b_1 = -x_1 + y_1$$

$$b_2 = -y_{to} + \frac{1}{k}x_{to}$$

e-ISSN : 26203502
p-ISSN : 26153785

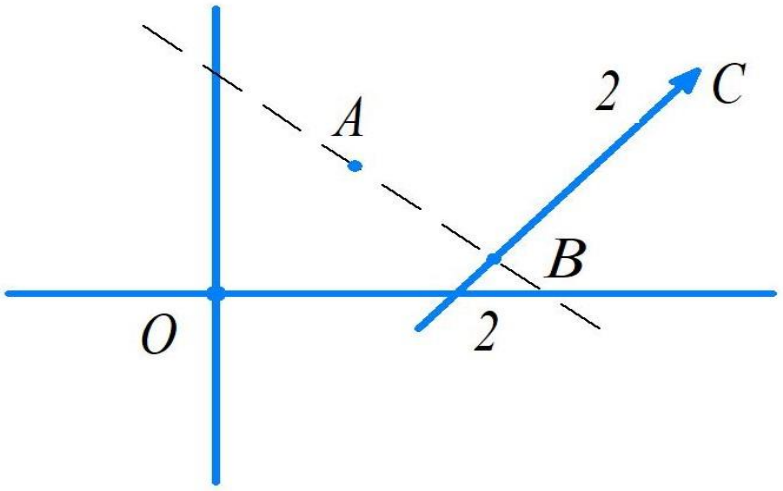

Figure 3.

(x_1; y_1) coordinates of point A, (x_2; y_2), coordinates of point B, (x_{to},y_{to}) coordinates of given point A.

We use this algorithmic formula to find the moment of force relative to point A using a perpendicular line drawn to the line of action of the given $\overrightarrow{AB}(x_1, y_1, x_2, y_2)$ force vector. In the above algorithm ($x_1 \neq y_1$).

It is known that the moment of a force relative to a point is equal to the multiplication of this force by the force shoulder. M=P*l

Using this algorithm, we learn how to assign forces to constituents. Because the shoulder of strength

$$\sqrt{(x_{to} - x)^2 + (y_{to} - y)^2} \qquad (2)$$

It should be determined by the formula.

The program prepared using this algorithm differs from the packages in that the constructions to be prepared for each topic are prepared in advance according to the listeners' skills. The program based on this algorithm should have the following capabilities:

1. The structure must have been previously created using a technical drawing package. KOMPAS, AvtoCad or similar packages adapted to drawing technical drawings are the main ones. This means that during the session, the task can be simplified or complicated according to the state of the audience, and the number of tasks is not limited.;
2. A loaded drawing can be complicated by adding other drawings as needed. To do this, add or partially remove drawing benefits;
3. It is known that the screen is given in pixels, and the technical drawing is given in mm. Scaling to fit;
4. Add external forces in different directions to the technical drawing. In this case, the external forces are live, taking into account the technical situation;
5. Be able to calculate all the applied forces, their projection on the coordinate axes and the moment of the force relative to a point.;
6. The obtained results make it possible to create a system of static equations in the auditory.

CONCLUSION

The main goal put forward in this article is the use of computer technologies in the training of specialists who have excellent knowledge of their design in order to increase the ability to work

e-ISSN : 26203502
p-ISSN : 26153785

new constructions for the purpose of developing production. It consists in teaching the interpretation of beneficial aspects of the virtual view in training a knowledgeable specialist, in order to correctly interpret the previously set task and increase the ability to correctly and accurately answer the question of what will happen if there is a change in the external event.

Bu dars berish paytida xar bir mavzu uchun shu mavzudan to‘liq tushuntirish holatlari ko‘rsatib o‘tilishiga bag‘ishlangan.

It should be noted that as a result of combining these structured programs in a science sequence, a science-ready virtual reading literature is prepared. In addition, the main goal is to highlight the advantage of visual solution of technical issues, rather than using a video lesson during the lesson.

REFERENCES

1. Двуличанская Н. Н. Интерактивные методы обучения как средство формирования ключевых компетенций [Interactive teaching methods as a means of forming key competencies] // Наука и образование: электронное научно-техническое издание, 2011
2. Косолапова М.А., Ефанов В.И. Развитие профессиональной компетентности преподавателя технического вуза при повышении квалификации [Development of professional competence of a teacher of a technical university during advanced training] //21 Материалы международной научно-методической конференции «Современное образование: проблемы обеспечения качества подготовки специалистов в условиях перехода к многоуровневой системе высшего образования» Томск: ТУСУР, 2012, с. 161-162.
3. Raxmonqulov R, Toshtemirov K.Q., Toshtemirova G.A. “About the one method of creation of electronic textbooks”, ACADEMICIA An International Multidisciplinary Research Journal ISSN: 2249-7137 Vol. 11, Issue 4, April 2021 Impact Factor: SJIF 2021 = 7.492. P.511-518.
4. Raxmonqulov R, Toshtemirov K.Q., Toshtemirova G.A. Creation of Learning the Subject of “Theoretical Mechanics” with the Help of Modern Information Technology, International Journal of Innovative Analyses and Emerging Technology. |e-ISSN: 2792-4025| Pp. 102-106. 2021-11-16.
5. Raxmonqulov R, Toshtemirov K.Q., Toshtemirova G.A. Oliy o‘quv yurtlarida mashinasozlik texnologiyasi yo’nalishiga doir fanlarini o’qitishning dolzarb masalalari [Current issues of teaching subjects related to mechanical engineering technology in higher educational institutions]. «Ta’lim tizimida innovatsiya, integratsiya va yangi texnologiyalar» va respublika ilmiy-amaliy anjumani materiallari. Namangan, 26-aprel 2021 yil. 177-183 b.
6. Raxmonqulov R, Toshtemirov K.Q., Toshtemirova G.A. Texnika oliy o‘quv yurtlarida texnik mexanika fanini o‘qitishda interfaol metodni qo’llash [Application of interactive method in teaching technical mechanics in technical higher educational institutions], “Qurilish sohasida bunyodkorlik ko‘lami va uning istiqbollari” mavzusida respublika ilmiy-amaliy konferensiyasi. Toshkent arxitektura-qurilish instituti huzuridagi Olmaliq arxitektura-qurilish texnikumi. – Olmaliq, 2022 yil 11 iyun. 13-16 b.
7. Mansurov M.T., Raxmonkulov R., Toshtemirova G.A. O‘zgarmas qalinlikdagi doiraviy plastinkalarni avtomatik loyihalash (simmetrik egilish holati uchun) [Automatic Design of Circular Plates of Constant Thickness (For Symmetric Bending Case)]”. “Машинасозликда инновациялар, энергиятежамкор технологиялар ва ресурслардан фойдаланиш самарадорлигини ошириш” мавзусида Халқаро миқёсдаги илмий-амалий конференция. Наманган шаҳри 28-29 май 2021 йил. 492-495 б.
8. Raxmonqulov R, Toshtemirov K.Q., Toshtemirova G.A. Mashina detallarini tayyorlash kadrlarini RDB dastgohlari uchun yozishni matematik modellashtirish va vizuallashtirish

e-ISSN : 26203502
p-ISSN : 26153785

[Mathematical modeling and visualization of the recording of machine detailing frames for RDB machines]. DGU 12795 22.10.2022

9. Raxmonqulov R, Toshtemirov K.Q., Toshtemirova G.A. Texnika oliy o'quv yurtlarida texnik mexanika fanini o'qitishda interfaol metodini qo'llash [Application of the interactive method in the teaching of technical mechanics in technical higher educational institutions]. "Qurilish sohasida bunyodkorlik ko'lami va uning istiqbollari" mavzusida 2022-yil 11-iyunda o'tkazilgan respublika ilmiy-amaliy konferensiya maqolalar to'plami. – Olmaliq, 2022. - 13-16 b.
10. Raxmonqulov R, Toshtemirov K.Q., Toshtemirova G.A. Talabalarning o'quv-ijodiy faolligini triz texnologiyalar vositasida rivojlantirish [Development of educational and creative activity of students with the help of triz technologies]. "Zamonaviy mashinasozlikda innovasion texnologiyalarni qo'llashning ilmiy asoslari: tajriba va istiqbollar" 23-24 sentyabr, 2022 yil, Namangan shahri 463-466 b